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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,877	05/15/2006	Claude Dehennau	05129-00118-US	5169

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CONNOLLY BOVE LODGE & HUTZ, LLP
P O BOX 2207
WILMINGTON, DE 19899

EXAMINER	
MCNALLY, DANIEL	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
12/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/564,877	DEHENNAU ET AL.	
	Examiner	Art Unit	
	DANIEL MCNALLY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/5/2008 has been entered.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rinkewich (US5047193, of record, previously cited, herein “Rinkewich”) in view of Nettesheim (US6387209, newly cited, herein "Nettesheim"), Dries et al. (US6749933, of record, previously cited, herein “Dries”) and Lusignea et al. (US5443884, of record, previously cited, herein “Lusignea”).

Rinkewich discloses a method of joining a honeycomb core to facing layers on either side of the core. As show in Figure 1, a core element (3) is continuously produced, plastic facing layers (211) which are considered the “two skins” are produced on either side of the core element, heating means (220a, 220b) such as a laser irradiate energy onto the assembly to heat the inner surfaces of the facing layers and to the ends of the ribs of the core element, the heated portions melt and fuse together. Rinkewich

discloses the material of the core element and the facing layers are thermoplastic or thermosetting. From Figure 1 it appears the laser would have to pass though the outside of the facing layers to heat the inner surfaces of the facing layers. Rinkewich is silent as to which part of the assembly is comprised of a laser absorbent material, and to which part of the assembly is comprised of a laser transparent material. Rinkewich is silent also as to the facing layers being uniaxially or biaxially orientated, as well as not destroying the orientation during the laser welding process.

Nettesheim discloses a method of joining thermoplastic films. The method comprises irradiating optical energy from an optical energy source to a joint area between two materials to be joined together. Nettesheim discloses several variant combinations for the arrangement of energy absorbent and energy transparent materials (Figures 6a-11b; column 4, lines 30-63). Nettesheim discloses one variant where at least one of the films is a compound film having an outer, transparent layer and an inner, absorbent layer. One of ordinary skill would have readily appreciated that each of the embodiments are an obvious variant for the arrangement of transparent ad absorbent materials.

Dries discloses a method of laser welding biaxially oriented films. Dries disclose a conventional laser welding process (column 1, lines 35-45). The use of laser welding allows the formation of a seam or weld only at the area irradiated with the laser so that it is possible to accurately form a weld only at a desired location; furthermore laser welding reduces the thermal loading and mechanical stresses applied to the films. Dries disclose the film comprises a transparent base layer, an outer layer and may comprise

additional layers, wherein the outer layer comprises an additive which is absorptive to a wavelength range of laser (column 1, lines 50-62). During the laser welding process the laser energy passes though the other layers of the film, which are transparent to the wavelength of the laser, to the outer layer where the laser energy is absorbed to heat the outer layer, the materials in contact with the outer layer are welded together by the heated outer layer without causing any damage to the other materials or layers though which the laser passed though (column 3, lines 33-46; column 8, lines 37-50). Dries also discloses the film is biaxially oriented, which improves the mechanical characteristics of the film (column 7, line 44 - column 8, line 15).

Lusignea discloses a composite structure. The structure comprises a honeycomb core formed of a plastic material, and face sheets on either side of the honeycomb core. The face sheets comprise a plastic material and are biaxially oriented. The use of biaxially oriented face sheets improves the strength and stiffness of the composite structure. Lusignea provides support that the use of oriented plastic sheets as facings on a honeycomb core was well known.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify method of Rinkewich by using transparent thermoplastic materials for all the parts to be joined and an absorbent material on the face of the skin as taught by Nettesheim in order to improve the joint heating by optimizing the amount of energy absorbed by the absorbent material, and by using a laser welding method as taught by Dries in order to reduce the thermal and mechanical stress on the parts of the assembly and to prevent any damage to the facing layers or films, and by using biaxially oriented

facing sheets as taught by Dries and Lusignea in order to improve the strength and stiffness of the honeycomb composite.

With regard to claim 12, Rinkewich discloses as shown in the Figures the core is obtained by a continuous manufacturing process and wherein the welding of the facing layers by means of the laser radiation takes place in line with the continuous manufacturing process.

4. Claims 9, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fell (US5316604 of record, previously cited, herein "Fell") in view of Nettesheim, Dries, Lusignea, and optionally in view of Rinkewich.

Fell discloses a method of making a sandwich structure. The method comprises continuously providing a honeycomb core, providing facing sheets on either side of the core so that the core cell edges contact the facing sheets, wherein the honeycomb core and the facing sheets comprises a plastic material such as polypropylene, a non-contacting heating means heats the core cell edges and the inner surfaces of the facing sheets, the heating means may also heat a bonding film if it is present between the facing sheets and core, the heated surfaces are heated to their fusion temperature, pressed together and allowed to cool so that a weld is formed (column 3, lines 15-27; column 3, line 53—column 4, line 67). Fell discloses using a non-contacting heating means and provides the example of an infrared radiation source but is silent toward using a laser source. Fell discloses a radiation absorbent material is located in the joint area between the materials to be joined, but is silent as to the materials to be joined being formed of a transparent material. Fell is silent as to the facing sheets being

uniaxially or biaxially orientated, wherein the orientation is not destroyed during the welding process.

Nettesheim discloses a method of welding using optical energy, and using transparent thermoplastic materials. Applicant is referred to paragraph 3 for a detailed discussion of Nettesheim.

Dries discloses a method of laser welding biaxially oriented films. Applicant is referred to paragraph 3 for a detailed discussion of Dries.

Lusignea discloses a composite structure comprising a honeycomb core formed of a plastic material, and biaxially oriented face sheets on either side of the honeycomb. Applicant is referred to paragraph 3 for a detailed discussion of Lusignea.

Rinkewich discloses a method of joining a honeycomb core to facing layers on either side of the core. Applicant is referred to paragraph 3 for a detailed discussion of Rinkewich. Rinkewich teaches it was known to use lasers to heat contacting surfaces of a honeycomb assembly.

It would have been obvious to one of ordinary skill in the art at the time of invention to use transparent thermoplastic materials for the materials to be joined as taught by Nettesheim in order to improve the joint heating by optimizing the amount of energy that can be absorbed by the absorbent material, and to choose laser energy as the non-contacting heating energy of Fell as taught by Dries in order to precisely heat the desired welding areas without wasting energy while decreasing the thermal load on the welded materials, and to modify Fell by using biaxially oriented facing sheets as taught by Dries and Lusignea in order to improve the strength and stiffness of the

honeycomb composite, which will not be destroyed during the welding process as disclosed by Dries, and Rinkewich optionally provides support for using laser energy to heat components of a honeycomb assembly.

With regard to claim 10, Fell discloses using polypropylene.

With regard to claim 12, Fell and Rinkewich disclose continuously providing the core material and performing the welding of the skins inline with the manufacturing process.

5. Claims 11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fell, Nettesheim, Dries, Lusignea, optionally Rinkewich, and further in view of Pflug (WO00/32382, of record, previously cited, herein "Pflug").

Fell discloses a method of making a sandwich structure. Applicant is referred to paragraph 4 for a detailed discussion of Fell as modified. Fell does not disclose producing the core by thermofolding of a plastic sheet. Fell teaches the absorbent layer is between the facing sheet and the core material, and Nettesheim teaches the absorbent material can be on the outer surface on either of the materials to be joined.

Pflug discloses a method of making a honeycomb structure. Pflug teaches a well known method of forming honeycomb cores by providing a thermoplastic sheet, thermoforming the sheet, and folding the sheet to form the honeycomb core.

One of ordinary skill in the art would have readily appreciated forming the honeycomb core of Fell using the well known method of thermoforming and folding a thermoplastic sheet as taught by Pflug in order to produce a honeycomb of an indefinite length.

With regard to claims 11, 14 and 15, Nettesheim discloses the energy absorbent layer is located on at least one of the materials to be joined, and it would have been well within the purview of one of ordinary skill to select which of the materials to include and not to include the absorbent layer on.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fell, Nettesheim, Dries, Lusignea, optionally Rinkewich, and further in view of Ducruy (FR2760999, of record, previously cited, herein "Ducruy").

Fell discloses a method of making a sandwich structure. Applicant is referred to paragraph 4 for a detailed discussion of Fell as modified. Fell does not disclose producing the core by an extrusion process. Nettesheim discloses a radiation absorbent layer can be located on only one face of each of the skins.

Ducruy discloses a method of making a honeycomb structure. Ducruy teaches a well known method of forming honeycomb cores by extrusion.

One of ordinary skill in the art would have readily appreciated forming the honeycomb core of Fell using the well known method of extrusion processing as taught by Ducruy in order to produce a honeycomb of an indefinite length.

Response to Arguments

7. Applicant's arguments with respect to claims 9-15 have been considered but are moot in view of the new ground(s) of rejection. Claim 9 was amended to require the skins and core material are formed of a transparent material, and the skins have an absorbent layer on one of their faces. Applicant argues providing the pigment on only one surface of the items to be welded, and forming mechanically reinforcing structures

at the weld interface is not at all suggested by Dries. The applicants claim merely requires providing an absorbent layer on one of the faces of the skins, and the core and the skins being formed of a transparent material. Newly cited Nettesheim discloses the materials to be joined can be formed of a transparent material, and at least one of the materials to be joined comprises an absorbent layer on the face there of.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MCNALLY whose telephone number is (571)272-2685. The examiner can normally be reached on Monday - Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel McNally/
Examiner, Art Unit 1791

/John L. Goff/
Primary Examiner, Art Unit 1791

/DPM/
November 22, 2008